

ZHAVORONKOV, V.G.

The 1S229 double-sided four-spindle boring machine. Biul.  
tekhn.-ekon.inform. no.3:25-26 '60. (MIRA 13:6)  
(Drilling and boring machinery)

ZHAVORONKOV, V.G.

Trade unions in the struggle for the fulfillment of the seven-year  
plan. Shvein. prem. no.1:27-28 Ja '59. (MIRA 12:6)

1. Predsedatel' Moskovskogo gorkoma prefsoyuza rabochikh tekstil'ney  
i legkoy promyshlennosti.

(Moscow--Clothing industry)

AL'TER-PESOTSKIY, F.L.; KATTS, N.V.; ARKHANGEL'SKIY, V.A.; DEYNEKA, V.S.;  
ZHAVORONKOV, V.I.

Ways to increase the efficiency of the use of carbon disulfide  
retorts. Khim. volok. no.6:47-49 '65. (MIRA 18:12)

1. Moskovskiy tekstil'nyy institut (for Al'ter-Pesotskiy,  
Katts). 2. Ryazanskiy kombinat iskusstvennogo volokna (for  
Arkhangel'skiy, Deyneka, Zhavoronkov). Submitted January 6,  
1965.

TROITSKAYA, D.N., inzh.; ZHAVORONKOV, V.N.; CHERNIKOV, P.V., inzh.

Diamond grinding of ceramic tips. Vest. mashinostr. 43  
no.7:70-72 J1 '63. (MIRA 16:8)

(Grinding and polishing)

ANDREYEV, G.S., kand. tekhn. nauk; BOKUCHAVA, G.V., kand. tekhn. nauk, dots.; BRAKMAN, L.A., inzh.; BUDNIKOVA, A.V., inzh.; GORDON, M.B., kand. tekhn. nauk, dots.; ZHAVORONKOV, V.N., inzh.; KARZHAVINA, T.V., kand. tekhn. nauk; KOROTKOVA, V.G., inzh.; KORCHAK, S.N., inzh.; KLUSHIN, M.I., kand. tekhn. nauk, dots.; KUZNETSOV, A.P., kand. tekhn. nauk, dots.; KURAKIN, A.V., inzh.; LATYSHEV, V.N., inzh.; OL'KHOVSKIY, V.N., inzh.; ORLOV, B.M., kand. tekhn. nauk, dots.; OSHER, R.N., inzh.; PODGORKOV, V.V., inzh.; SIL'VESTROV, V.D., kand. tekhn. nauk [deceased]; TIKHONOV, V.M., inzh.; TROITSKAYA, D.N., inzh.; KHRIL'KOV, V.A., inzh.; LESNICHENKO, I.I., red. izd-va; SOKOLOVA, T.F., tekhn. red.; GORDEYEVA, L.P., tekhn. red.

[Lubricating and cooling fluids and their use in cutting metals]  
Smazochno-okhlazhdaushchie zhidkosti pri rezanii metallov i  
tekhnika ikh primeneniia. Moskva, Gos. nauchno-tekhn. izd-vo  
mashinostroit. lit-ry, 1961. 291 p. (MIRA 15:1)  
(Metalworking lubricants)

S/121/60/000/010/012/015  
A004/A001

AUTHORS: Troitskaya, D. N., Zhavoronkov, V. N.

TITLE: Cooling by Atomized Liquids During Plane Grinding and Tool Grinding  
PERIODICAL: Stanki i Instrument, 1960, No. 10, pp. 31-33

TEXT: The authors point out that, since tool grinding without cooling leads often to the origination of cracks and sears, the use of atomized coolants results in a better surface finish of the tool without preventing the operator from ob- serving the contact zone of tool and grinding disk, as it is the case with the coolant being supplied as a jet. The authors give a description of the atomizer and nozzle designs being used and report on investigations which were carried out at the Gor'kovskiy avtozavod (Gor'kiy Automobile Plant) with specimens of the tool steel grades P18 (R18), P19 (R19) and X12Φ (Kh12F). The specimens of the tool and hardened to the following degrees of hardness: Kh12F to RC 56 - 58, R 9 to RC 65 and R18 to 64 - 65. Grinding disks of the 3560 (EB60) grade with a ceramic binder, with the dimensions 250 x 13 x 75 mm, made by the "Il'ich" Plant were used. Grinding was carried out with and without cooling under the following conditions:  $v = 38.8 - 35$  m/sec,  $s_{long} = 7.0$  m/min,  $s_{trans} = 1.0$  mm/operation,  $t = 0.03$  mm. An allowance of 0.21 mm on each side of the specimens was removed  
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S/121/60/000/010/012/015  
A004/A001

# Cooling by Atomized Liquids During Plane Grinding and Tool Grinding

in seven operations. The cooling and lubrication agent <sup>11</sup> was supplied in the direction of disk rotation under the following conditions: 1) as a falling emulsion jet (consumption of 4.5 - 5 liters/minute); 2) by compressed air with a pressure of 3.5 - 4 kg/cm<sup>2</sup> (consumption of 5.0 - 6.0 m<sup>3</sup>/hour), 3) liquids atomized by compressed air with 2.5 kg/cm<sup>2</sup> pressure. The following liquid compositions were tested: 1) 5% emulsion (5% emulsion + 95% water), consumption = 100-150 gram/hour; 2) liquid No. 1 (5% emulsion + 2% sulfogresol + 93% water), consumption = 100-150 gram/hour; 3) liquid No. 2 (90% sulfogresol + 10% diesel oil), consumption = 0.6 - 0.8 gram/hour; 4) liquid No. 5 (5% emulsion = 0.15% colloidal graphite + 94.85% water), consumption = 100-150 gram/hour; 5) liquid No. 7 (96% spindle oil + 4% paraffin), consumption = 0.6 - 0.8 gram/hour; 6) spindle oil without additives, consumption = 0.6 - 0.8 gram/hour; 7) liquid No. 8 (1.5% triethanolamine + 0.5% paste of sulfo-fatty alcohol + 98% water), consumption = 100-150 gram/hour; liquid No. 9 (3% triethanolamine = 0.3% sodium nitrite + 1.5% calcium chloride = 0.1% hexametaphosphate of sodium + 1.0% OP10 (OP10) preparation + 94.7% water), consumption = 100-150 gram/hour. The finish of the machined surface was checked on the KB-7 (KV-7) contourmeter. Two test series were carried out. During the first series, the cooling effects on the

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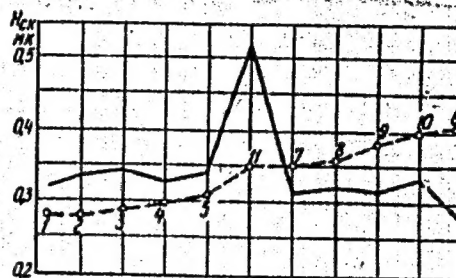
# Cooling by Atomized Liquids During Plane Grinding and Tool Grinding

surface finish, residual stresses and state of the working surface of the grinding disk were investigated. The second series had as an object to determine the coolant which had the maximum effect on the grinding process. It was found as a result of the first test series that the tested liquids, according to their affecting the grinding process, can be divided into two groups. The first group comprises liquids improving the grinding process and reducing the residual stresses. The second group includes the liquids deteriorating the surface finish and showing no remarkable effect on the reduction of the residual stresses. Fig. 5 shows the comparative data for the above-mentioned liquids.

Figure 5:

Continuous line = operation without cooling,  
broken line = operation with atomized coolants.  
1 - with spindle oil No. 3, 2 - with liquid  
No. 5, 3 - with liquid No. 1, 4 - with emulsion,  
5 - with compressed air, 6 - with liquid No. 9,  
7 - with liquid No. 7, 8 - with emulsion  
supplied through the disk pores, 9 - with

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Cooling by Atomized Liquids During Plane Grinding and Tool Grinding

liquid No. 2, 10 - with liquid No. 8, 11 - with ordinary emulsion jet. Thus, by selecting the right kind of grinding disk and coolants, it is possible to reduce the residual stresses and improve the surface finish of the component. The optimum emulsion concentration and other liquids on a water base amounts to 100 - 150 gram/hour. The concentration of oil and oil mixtures in the air jet should not exceed 0.5 - 0.8 gram/hour. The air pressure in each case amounts to 2.5 - 3.0 kg/cm<sup>2</sup>. There are 6 figures and 1 table.

Card 4/4

CHERNIKOV, P.V.; ZAYTSEV, L.S.; ZHAVORONKOV, V.N.

Attachment for grinding and lapping cutting tools along the tail surfaces and radii. Stan.1 instr. 34 no.3:43-44, Mr '63.

(MIRA 16:5)

(Grinding machines—Attachments)

ZHAVORONKOV, V.V.; PAKTOVSKIY, Ya.V.

Angiocardiography in pulseless disease. Khim. med. 38 no.5:121-  
126 My '60. (MIRA 13:12)

(ARTERIES—DISEASES)

(ANGIOCARDIOGRAPHY)

S/169/61/000/011/028/065  
D228/D304

AUTHORS: Polak, L.S., Filippov. Ye.M., Kuznetsov, G.A., and  
Zhavoronkov, V.Ya.

TITLE: Investigating the spectrum of dispersed gamma-radia-  
tion in conformity with the solution of certain geo-  
physical problems

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 11, 1961, 34-35,  
abstract 11A306 (Geologiya i geofizika, no. 3, 1961,  
111 - 115)

TEXT: Experiments are described on the study of the spectrum of  
dispersed  $\gamma$ -radiation; these were carried out with the aim of cla-  
rifying the possibilities of the method of dispersed  $\gamma$ -radiation  
(DGR). The isotopes  $\text{Co}^{60}$  and  $\text{Cs}^{137}$  were used. A luminescent counter  
with a crystal of  $\text{CsI}(\text{Tl})$  and a  $\Phi\text{ЭУ-29}$  (FEU-29) photomultiplier  
were employed as an indicator. A 100-channel analyzer of the "Radu-  
ga" type was used. The source and indicator of the radiation were  
placed in a lead shield at a distance of 7 cm from each other. The  
depth-potential of the investigation was ascertained in plexiglass,  
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Investigating the spectrum of ...

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glass and iron. The spectra obtained in these media are given. It was established that the increase in the density of the medium and in its effective atomic number leads to the decrease in the depth-potential of the investigation. The increase in the energy of the source of the  $\gamma$ -quanta from 0.661 m.e.v. to 1.25 m.e.v. for a 7 cm probe results in practically no change in the depth-potential of the investigation. The recording of the maximum of the equilibrium spectrum of the dispersed  $\gamma$ -radiation in place of the recording of the integral rate of counting is recommended when working with a 7 cm probe; this leads on an average to a 25 % increase in the depth-potential. The dependence of the measurement results on the change in the rock density in the interval 0.4 - 7.8 g/cm<sup>3</sup> was investigated. It was established that the increase in the energy of the source of the  $\gamma$ -quanta results in the increase sensitivity of the method to changes in the rock density. It is shown that the presence of small impurities of the heavy element (Pb) in the sand leads to the sharp change in the spectrum of the dispersed  $\gamma$ -radiation, and that the method's sensitivity to the content of the heavy element in the K-jump region is higher compared with the integral. In the

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author's opinion the measurements of the differential and integral rates of counting should be combined when determining the density of rocks and studying the content of heavy elements in them by the method of dispersed  $\gamma$ -radiation. [Abstractor's note: Complete translation].



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**CIA-RDP86-00513R002064610014-7"**

ACC NR: AP7013162

SOURCE CODE: UR/0210/66/000/009/0094/0102

AUTHOR: Filippov, Ye. M.--Philippov, E. M.; Zhavoronkov, V. Ya.

ORG: Institute of Geology and Geophysics, Siberian Department, AN SSSR,  
Novosibirsk (Institut geologii i geofiziki Sibirskogo otdeleniya AN SSSR)

TITLE: Possibility of using electronic accelerators in truck and helicopter  
surveys

SOURCE: Geologiya i geofizika, no. 9, 1966, 94-102

TOPIC TAGS: electron accelerator, gamma radiation, geologic instrument,  
geologic survey, photoneutron, geologic research facility, stratigraphic  
mapping, prospecting, helicopter / MI-6 helicopter

SUB CODE: 08,20,01

ABSTRACT: The author discusses the possibilities for using electronic  
accelerators as sources of powerful gamma radiation for determining the presence  
of a number of kinds of minerals by the photoneutron method. Computations are  
presented showing that nuclear technology now can be employed on land or from  
the air for both geological mapping and determining the rock content of beryllium,  
deuterium, lithium, carbon, thorium and uranium. The Institute of Nuclear Physics  
of the Siberian Department of the Academy of Sciences, for example, has devel-  
oped an electron accelerator weighing 1.2 tons that can be used aboard  
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UDC: 550.835

ACC NR: AP7013162

a helicopter employed for geological prospecting work. A MI-6 helicopter with a load-lifting capacity of 10-12 tons can be used. This craft can lift up to 8 tons on a cable to heights of 25-50 m. The helicopter carries recording apparatus and a current source for operation of the accelerator. The crew is protected by lead shielding weighing about 1 ton. Therefore, the total weight of the apparatus on the cable is 4-5 tons. The control panel, recording system and computer weigh not more than 1-2 tons. It is recommended that helicopters be replaced by less expensive dirigibles. Prospecting for beryllium (for example) can be carried out from a height of about 50 m and its clark can be determined with sufficient accuracy from a height of 25 m. The doses of radiation at the surface are entirely harmless. Orig. art. has: 1 figure, 9 formulas and 6 tables, [JPRS: 40,106]

VAKHTIN, B.S.; ZHAVORONKOV, V.Ya.; FILIPPOV, Yo.M.

Using the SRP-2 radiometer for solving certain practical  
problems in geology. Razved. i okh. nedr 31 no.1:40-44  
Ja '65. (MIRA 18:3)

1. Sibirskoye otdeleniye AN SSSR.



ZHAVORONKOV, V.Ya.; FILIPPOV, Ye.M.

Problem of classifying rocks and ores differing slightly  
in normal physical properties. Tsvet. met. 38 no.5:18-19  
My '65.

(MIRA 18:6)

VARVARIN, G.B.; ZHAVORONKOV, V.Ya.; FILIPPOV, Ye.M.; BORISOV, V.B.;  
MELIK-STEFANOV, Yu.G.

Determining the density of the flow of a mineral suspension during  
ore dressing on shaking troughs, using a source of gamma rays.  
TSvet. met. 36 no.7:7-10 J1 '63. (MIRA 16:8)  
(Ore dressing) (Suspensions (Chemistry)--Density)  
(Gamma rays--Industrial applications)

POLAK, L. S.; FILIPPOV, Ye. M.; KUZNETSOV, G. A.; ZHAVORONKOV, V. Ya.

Concerning the remarks of S. G. Troitskii, and V. L. Shashkin  
in "Geologiya i geofizika" no. 7, 1962. Geol. i geofiz. no.9:  
125-126 '62. (MIRA 15:10)

(Rocks—Density) (Gamma-ray spectrometry)  
(Troitskii, S. G.) (Shashkin, V. L.)

POLAK, L.S.; FILIPPOV, Ye. M.; KUZNETSOV, G.A.; ZHAVORONKOV, V. Ya.

Studying the spectra of scattered gamma rays in connection with the solution of certain geophysical problems. Geol. i geofiz. no.3:111-115 '61. (MIRA 14:5)

1. Institut geologii i geofiziki Sibirskogo otdeleniya AN SSSR  
Novosibirsk.

(Gamma-ray spectrometry)

ZHAVORONKOV, V. Ya.; FILIPPOV, Ye. M.

Determination of boron content in rocks by recording gamma radiation  
from the  $B^{10}$  (p,  $\alpha$ ) reaction, Geol. i geofiz. no. 7:101-103 '65.

1. Institut geologii i geofiziki Sibirskogo otdeleniya AN SSSR, (MIRA 18:9)  
Novosibirsk.

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4

Electrochemical degreasing of metals. III. Degreasing by means of aqueous phosphates and silicates. M. S. Golombik, A. M. Zhavoronkova, D. S. Lev and N. N. Petin. *J. Applied Chem.* (U. S. S. R.) 8, 994-1000 (1935).—Max. velocity of degreasing of Fe articles is obtained by immersion in aq. Na silicate (I) in concn. corresponding with 0.25% of  $\text{Na}_2\text{O}$ , together with 0.5%  $\text{Na}_2\text{PO}_4$  (II) at  $80^\circ$ , with a current of 0.01-0.03 amp./sq. cm., reversed every 1-2 min. At  $18^\circ$ /0.3 amp. the combined effect of I and II is less than that of each alone, while at  $18^\circ$ /0.01 amp. and  $80^\circ$ /0.01-0.03 amp. it is considerably greater. B. C. A.

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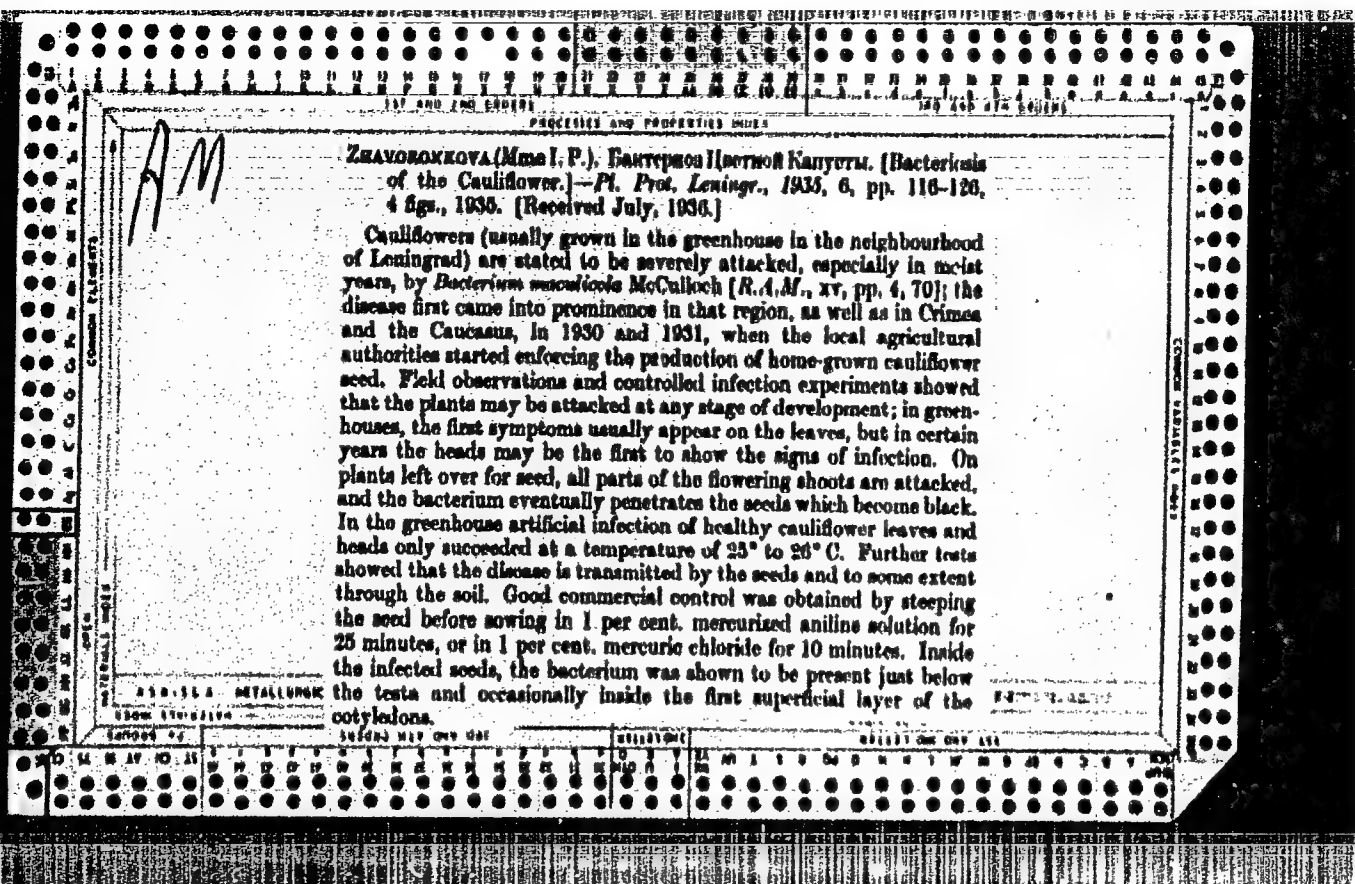
PUKHONTO, A.N.; ZHAVORONKOVA, A.Ya.; MOISEYEVA, Ye.I.; SMIRNOV, V.F.

Determination of butyl phosphoric acids, tributyl phosphate, and kerosine when present together in aqueous solutions. Zhur. anal. khim. 20 no.3:372-374, '65. (MIRA 18:5)

ZHAVORONKOVA, E. ; YAROSHEVSKIY, A. Ya. ; Leningrad

" Fibrinolysis and influence upon it in case of atherosclerosis and its complications."

Report presented at the joint meeting of the European Society of Hematology and the International Society of Blood Transfusion, Lisbon, Portugal, 26-31 August 1963.



ZHAVORONKOVA, I.P.

"History of power machinery" by L.D.Bel'kind and others. Reviewed  
by I.P.Zhavoronkova. Vop.ist.est.i tekhn. no.12:221-223 '62.

(MIRA 15:4)

(Power engineering)  
(Bel'kind, L.D.)

Author: Zhavoronkova, I. P.

Title: Survey of articles on the history of Soviet technique. (Obzor statei  
po istorii sovetskoi tekhniki.)

City: Moscow

Publisher: Soviet Science

Date: 1950

Available: Library of Congress

Source: Monthly List of Russian Acquisitions, Vol. 3, No. 11, p. 761

ZHAVORONKOVA, I. F.

"Early Period of Planting as an Agricultural Measure for Control of Bacteriosis of Cauliflower," Izvestiia Leningradskoi Oblastnoi Stantsii Zashchity Rastenii ot Vreditel'ei, vol. 7, no. 2, 1936, pp. 1-8. 423.92 S68B

So: Sira S1-90-53, 15 Dec. 1953



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"Bacteriosis of the Cauliflower," Zashchita Rastenii, no. 6, 1935,  
pp. 116-126. 421 P942

So: Sira SI-90-53, 15 Dec. 1953

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"Bacterial Root Rot of Red Clover, Lucerne, and Lentils Caused by  
Bacterium radiciperda new sp.," Trudy po Zashchite Rastenii, Seria 2,  
no. 1, 1932, pp. 161-172. 423.92 154P

So: Sira SI-90-53, 15 Dec. 1953

GRINER, A.S.; ZHAVORONKOVA, I.P.; NEVENGLOVSKIY, Yu.B.

Problems of organizing rhythmical work in coal mines. Nauch.trudy  
MGI no.30:43-53 '60. (MIRA 14:3)  
(Coal mines and mining)

Pravopisnaya, Anna Petrovna

N/5

767.002

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Proizvoditel'nost' truda v ugol'noy  
promyshlennosti SSSR [Labor producti-  
vity in USSR coal industry] Moskva,  
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70, [2] p. diagrs., tables.

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I.P., otv.red.; GOLUBYATNIKOVA, G.S., red.izd-va; BERESLAVSKAYA,  
L.Sh., tekhn.red.; KOROVENKOVA, Z.A., tekhn.red.

[Coal mining economics] Ekonomika ugol'noi promyshlennosti.  
Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1960.  
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(Coal mines and mining)

ZHAVORONKOVA, I.P.

"History of technology in the Latvian S.S.R.," edited by  
IU.A.Mikhailov. Reviewed by I.P.Zhavoronkova. Vop.ist.est.1  
tekh. no.10:161-162 '60. (MIRA 14:3)  
(Latvia--Technology)  
(Mikhailov, IU.A.)

ZHAVORONKOVA, I.P.

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Vop.ist.est.i tekhn. no.10:163-164 '60. (MIRA 14:3)  
(Czechoslovakia—Science)

ZHAVORONKOVA, Irada Patnovna; MIKHEYEV, G.P., otvetstvennyy redaktor;  
PEYTEL'MAN, N.H., redaktor izdatel'stva; DOBEVA, G.V., redaktor  
izdatel'stva; ANDREYEV, G.G., tekhnicheskiiy redaktor.

[Labor productivity in the Soviet coal industry] Proizvoditel'nost'  
truda v ugol'noi promyshlennosti SSSR. Moskva, Ugletekhisdat, 1957.  
70 p. (MIRA 10:11)

(Labor productivity) (Coal mines and mining)



ZHAVORONKOVA, I.P.; SHUKHARDIN, S.V.

G. Agricola's works on mining. Vop. ist.est. i tekhn. no.1:  
137-146 '56. (MLRA 9:10)

(Agricola, Georg. 1494-1555) (Mining engineering)

ZHAVORONKOVA, I.P., kandidat tekhnicheskikh nauk.

Georg Agricola, outstanding German scientist of the 16th century.  
Ugol' 30 no.11:45-46 M '55. (MLRA 9:2)

(Agricola, Georg, 1494-1555)

ZHAVORONKOVA, I.P.

History of the Prokopyevsk-Kiselevsk large steeply pitching  
coal seam mining in the Kuznetsk Basin. Trudy po ist.tekh.  
no.9:17-48 '54. (MIRA 8:3)  
(Kuznetsk Basin--Coal mines and mining)

Zhurnal'nykh Statey, Vol. 47, 1948.

42285: ZHAVORONKOVA, I. P. - Aleksandr Mitrofanovkh terpigorev. (Spetsialist v gornoy prom-sti). K 75-letiyu so dnya rozhdeniya.-s. portr. Nauka i zhizn', 1948, No 12, s. 33-35.

SO: Letopis' Zhurnal'nykh Statey, Vol. 47, 1948.

GRINER, A.S., dots., kand. tekhn.nauk; ZHAVORONKOVA, I.P., kand.tekhn.nauk

Investigating rhythmic operations in coal mines. Nauch. dokl. vys.  
shkoly; gor. delo no.3:253-258 '58. (MIRA 11:9)

1. Predstavlena kafedroy ekonomiki organizatsii i planirovaniya  
proizvodstva Moskovskogo gornogo instituta im. I.V. Stalina.  
(Coal mines and mining) (Mine management)

ZHAVORONKOVA, I.P.

"Russian gold; history of its discovery and mining to the middle  
of the 19th century" by V.V. Danilevskii. Reviewed by I.P.  
Zhavoronkova. Vop.ist.est. i tekhn. no.11:163 '61. (MIRA 14:11)  
(Gold mines and mining)  
(Danilevskii, V.V.)

ZHAVORONKOVA, I.P.

"Chemical methods in the recovery of minerals" by I.P. Kirichenko.  
Reviewed by I.P. Zhavoronkova. Vop.ist.est. i tekhn. no.11:163-164  
'61. (MIRA 14:11)

(Mines and mineral resources)  
(Kirichenko, I.P.)

AVDEYENKO, M.A.; BORNSKOV, G.K.; ZHAVORONKOVA, K.N.

Specific catalytic activity of iron films with respect to the isotopic exchange reaction in molecular nitrogen. Dokl.AN SSSR 133 no.6:1354-1357 Ag '60.  
(MIRA 13:8)

1. Fiziko-khimicheskiy institut im. L.Ya.Karpova.
2. Chlen-korrespondent AN SSSR (for Avdeyenko).  
(Iron) (Nitrogen) (Deuterium)



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1208, 2209, 1274

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S/020/60/133/006/030/031XX  
B004/B067

AUTHORS: Avdeyenko, M. A., Boreskov, G. K., Corresponding Member of  
the AS USSR, and Zhevoronkova, K. N.

TITLE: Specific Catalytic Activity of Iron Films With Respect to  
the Reaction of Isotopic Exchange in Molecular Hydrogen

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 6,  
pp. 1354-1357

TEXT: The authors refer to published data according to which the catalytic and adsorptive properties of metal films differ from those of massive metals. In the present paper, they study the effect of sputtering and sintering conditions of iron films on their catalytic activity with respect to isotopic exchange in molecular hydrogen. The catalytic activity was measured statically in a vacuum chamber whose walls (before the sputtering of the iron film) were degassed at 500°C down to a pressure below  $10^{-7}$  mm Hg. The films were condensed by heating lamellas of spectroscopically pure Hilger iron on the walls of the chamber whose

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Specific Catalytic Activity of Iron Films  
With Respect to the Reaction of Isotopic  
Exchange in Molecular Hydrogen

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B004/B067

temperatures were  $-196^{\circ}\text{C}$ ,  $+20^{\circ}\text{C}$ , or  $+300^{\circ}\text{C}$ . It was found that the size  $a$  of the original iron crystals is constant for every condensation temperature ( $CT^{\circ}$ ). The following values are given: Table 1

The surface of the film was volumetrically determined by adsorption of hydrogen or krypton at  $-196^{\circ}\text{C}$ ,  $10^{-2}$  -  $10^{-1}$  mm Hg.

The catalytic activity was measured with an equivalent mixture of  $\text{H}_2$  and  $\text{D}_2$  at  $-196^{\circ}\text{C}$  and 0.5 mm Hg. In the first experimental series, the following values were obtained for the constant  $K$  (g.mole/cm<sup>2</sup>.sec) according to Table 2. In the second experimental series, the following was obtained (according to Table 3):

$CT^{\circ}, ^{\circ}\text{C}$	$a, \text{\AA}$	Specific surface $\text{m}^2/\text{g}$
-196	60	125
20	300	25
300	4800	1.6

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Specific Catalytic Activity of Iron Films  
With Respect to the Reaction of Isotopic  
Exchange in Molecular Hydrogen

86379  
S/020/60/133/006/030/031XX  
B004/B067

Table 2

$CT^0, ^\circ C$	$K \cdot 10^{12}$	$a, \text{\AA}$
+20	2.3-3.3	300
+300	2.1-3.5	4800

Table 3

$CT^0, ^\circ C$	$K \cdot 10^{12}$	$a, \text{\AA}$
-196	23	60
+20	8-13.7	300
+300	24.5	4800

The differences between the values of the two series were explained by insufficient degassing of the iron lamellas in the first series. The authors arrived at the conclusion that the specific activity of iron films remains almost unchanged, although the condensation temperature, the crystal size, and the specific surface were strongly changed. A slight decrease in the activity of films sintered at  $300^\circ$  or  $550^\circ C$  is explained by an increased concentration of impurities on the surface reduced by sintering. Another series of experiments was made with iron which was previously purified by melting it in vacuo. The following result was obtained for a film sintered at  $300^\circ C$  (according to Table 4):

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Specific Catalytic Activity of Iron Films  
With Respect to the Reaction of Isotopic  
Exchange in Molecular Hydrogen

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$K = (39-48) \cdot 10^{-12}$ , and for a film sintered at  $550^{\circ}\text{C}$ ,  $K = 20 \cdot 10^{-12}$ . Thus, the nearly constant activity of such films was proved in spite of the widely different methods of production. There are 4 figures, 4 tables, and 11 references: 6 Soviet, 4 British, and 1 German. ✓

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova  
(Physico-chemical Institute imeni L. Ya. Karpov)

SUBMITTED: May 11, 1960

Card 4/4

ZHAVORONKOVA, L.P., assistant (Yaroslavl 2, ul. Stachek, d.13, kv.1)

Experience with the intra-aortic administration of drugs. Vest.  
khir. 86 no.3:56-60 Mr '61. (MIRA 14:3)

1. Iz gosptal'noy khirurgicheskoy kliniki (zav. - prof. A.A.  
Troitskiy) Yaroslavskogo meditsinskogo instituta.  
(AORTA) (INJECTIONS, INTRA-ARTERIAL)

ZHAVORONKOVA, L.Yu.; BURTSEV, V.I.

Characteristics of the clinical course of peptic ulcer in elderly persons. Sov. med. 28 no.6:52-57 Je '65. (MIRA 18:8)

1. Kafedra fakul'tetskoy terapii I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M. Sechenova.

ZHAVORONKOVA, L. Yu.

Significance of color gastrophotography in the diagnosis of  
some stomach diseases. Terap. arkh. 34 no.5:63-66 '62.  
(MIRA 15:6)

1. Iz kafedry fakul'tetskoy terapii (zav. - deystvitel'nyy  
chlen AMN SSSR prof. V. N. Vinogradov) I Moskovskogo ordena  
Lenina meditsinskogo instituta imeni I. M. Sechenova.

(STOMACH--DISEASES) (PHOTOGRAPHY, MEDICAL)

VOYEVODSKIY, Sergey Alekseyevich, inzh.; KHASKIN, Abram  
Mikhaylovich, inzh.; KRASNITS, Zyama Yakovlevich, inzh.;  
ALENICHEVA, Ye.A., inzh., retsenzent; ZHAVORONKOVA, N.N.,  
inzh., retsenzent; KYUN, S.A., kand. tekhn. nauk,  
retsenzent; PUCHKO, N.F., inzh., retsenzent; UMANOV, I.I.,  
inzh., retsenzent; LEUTA, V.I., inzh., retsenzent

[Course in mechanical drawing for correspondence technical  
schools] Kurs ochercheniya dlia zaochnykh tekhnikumov. Kiev,  
Tekhnika. Pt.2. 1965. 319 p. (MIRA 18:8)



ZHAVORONKOVA, O.A.

Features of the hydrogeological conditions of the basin of the  
Uluntuy sink. Izv.vys.ucheb.zav.; geol.i razv. 5 no.3:90-99  
Mr '62. (MIRA 15:4)

1. Permskiy politekhnicheskii institut.  
(Uluntuy Valley--Water, Underground)

FEDOROV, V.K., kand.tekhn.nauk; ZHAVORONKOVA, R.S., inzh.

Improving casting properties of the Kh28 alloy, Sbor.st.  
NIIKHIMMASH no.23:3-13 '57. (MIRA 12:5)  
(Steel alloys--Metallography)

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 12, p 172 (USSR) SOV/137-58-12-25247

AUTHORS: Fedorov, V. K., Zhavoronkova, R. S.

TITLE: Improvement of Casting Properties of Kh28 Alloy (Uluchsheniye  
liteynykh svoystv splava Kh28)

PERIODICAL: Sb. statey Vses. n. -i. i konstrukt. in-t khim. mashinostr., 1957,  
Vol 23, pp 3-13

ABSTRACT: An investigation was made of heat tearing and "black-spot" formation in castings of Kh28 alloy of the following composition (in %): C 0.5 - 1.0, Mn 0.5 - 0.8, Si 0.5 - 1.3, and Cr 26 - 30, depending upon the structure of the casting, pouring temperature, melting procedure, composition of the charge, conditions of inoculation, and rate of cooling. The following specimens were cast: 25x25 mm in cross section, bent at 120, 90, and 30-degree angles, specimens 30 and 60 mm in diam and a rake-shaped specimen, as well as standard specimens for bending tests and for determination of fluidity. The following inoculants were used: 75% FeSi in amounts of 0.5 and 1% of the weight of the metal and a mixture of FeSi + FeTi (1:1) 0.6 - 0.8% of the weight of the metal. The character of the fracture, the microstructure, and

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SOV/137-58-12-25247

### Improvement of Casting Properties of Kh28 Alloy

the mechanical properties were investigated. It was established that to avoid hot tearing and "black spots" higher casting temperature is necessary:  $>1500^{\circ}\text{C}$  for thin-wall and  $>1450^{\circ}$  for thick-wall castings. In order to produce finer grain and to improve the mechanical properties the authors recommend inoculation with the  $\text{FeS} + \text{FeTi}$  (1:1) mixture in amounts of 0.6 - 0.8% of the weight of metal, and an increase of the cooling rate by chill casting and setting up a cooling system.

T. F.

Card 2/2

YAROSHEVSKIY, A.Ya.; ZHAVORONKOVA, Ye.K.

Observation of the results of antieccagulant therapy and the indices of the blood coagulation system in coror y in-sufficiency. Trudy Inst. klin. i eksper. kard. AN Gruz. SSR 8:353-356 '63. (MIRA 17:7)

1. Institut fiziologii AN SSSR, Leningrad.

ZHAVORNYKVA, YE. K.

Dissertation defended at the Institute of Physiology imeni I. F. Pavlov  
for the academic degree of Candidate of Medical Sciences:

"Coagulating System of Blood and the Effect on it of Anticoagulants During  
Disorders of Venous Circulation."

Vestnik Akad Nauk, No. 4, 1963, pp. 119-145

FEL'DSHTEYN, A.L.; ZHAVORONKOVA, Ye.S.

Calculation of Chebychev's directional couplers with weak coupling.  
Radiotekhnika 17 no.1:40-50 Ja '62. (MIRA 15:2)

1. Deystvitel'nyye chleny Nauchno-tekhnicheskogo obshchestva  
radiotekhniki i elektrosvyazi imeni Popova.  
(Wave guides) (Microwaves)

33778

S/108/62/017/001/005/007  
D271/D304

9,1300

AUTHORS:

Fel'dshteyn, A.L., and Zhavoronkova, Ye.S., Members  
of the Society (see Association)

TITLE:

Calculating the Chebyshev directional couplers, with  
loose coupling

PERIODICAL: Radiotekhnika, v. 17, no. 1, 1962, 40 - 50

TEXT: A synthesis method is presented for multi-element optimal  
directional couplers, and design data are tabulated for couplers  
consisting of 2 - 11 elements. The coupler which is considered is  
shown in Fig. 2; its function is to branch a required power from  
the main line 1-3 into 4, while the leak into 2 remains below the  
permitted limit. Transfer coefficients  $S_{12}$  and  $S_{14}$  are functions  
of frequency; if they are of Chebyshev (iso-thermal) character, a  
minimum number of elements is required. Elements of the coupler are  
four-port networks as shown in Fig. 3, where  $\alpha$  is the number of the  
element. Scatter matrices of the coupler and of its elements are of  
the type

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Calculating the Chebyshev directional ... D271/D304

$$[S] = \begin{bmatrix} S_{11}S_{13} & S_{13}S_{14} \\ S_{12}S_{11} & S_{14}S_{13} \\ S_{13}S_{14} & S_{11}S_{13} \\ S_{14}S_{13} & S_{13}S_{11} \end{bmatrix} \text{ and } [S]_a = \begin{bmatrix} S_{11}^a S_{12}^a & S_{13}^a S_{14}^a \\ S_{12}^a S_{11}^a & S_{14}^a S_{13}^a \\ S_{13}^a S_{14}^a & S_{11}^a S_{13}^a \\ S_{14}^a S_{13}^a & S_{12}^a S_{11}^a \end{bmatrix} \quad (1)$$

Wave transfer matrix  $[T]_a$ , assuming  $S_{11}, S_{13}, S_{14} \ll 1$  and  $S_{12} \approx 1$ , is

$$[T]_a = \begin{bmatrix} e^{i\theta} & -S_{14}^a e^{i\theta} & -S_{11}^a & -S_{12}^a \\ -S_{14}^a e^{i\theta} & e^{i\theta} & -S_{12}^a & -S_{11}^a \\ S_{11}^a & S_{12}^a & e^{-i\theta} & S_{14}^a e^{-i\theta} \\ S_{12}^a & S_{11}^a & S_{14}^a e^{-i\theta} & e^{-i\theta} \end{bmatrix} \quad (8)$$

where  $\theta = \frac{2\pi l}{\Delta}$ . Transfer coefficients are then written out as

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Calculating the Chebyshev directional... D271/D304

$$S_{11} = e^{-10} \sum_{\alpha=1}^n S_{11}^{\alpha} e^{-12(n-\alpha)\theta}, \quad (9) \quad S_{13} = \prod_{q=1}^n S_{13}^{\alpha} e^{-10} \approx e^{-10n}, \quad (11)$$

$$S_{12} = e^{-10} \sum_{\alpha=1}^n S_{12}^{\alpha} e^{-12(n-\alpha)\theta}, \quad (10) \quad S_{14} = e^{-10n} \sum_{\alpha=1}^n S_{14}^{\alpha}, \quad (12)$$

where each parameter of the coupler depends only on element parameters of the same designation. A particular case is considered when an element of the coupler is non-directional; because of symmetry

$$-S_{11}^{\alpha} = S_{12}^{\alpha} = S_{14}^{\alpha} = 10_{\alpha} \quad (13)$$

where  $10 \log \frac{1}{C_{\alpha}^2}$  is transfer attenuation of one element. Transfer coefficients  $S_{12}$  and  $S_{14}$  become

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Calculating the Chebyshev directional... D271/D304

$$S_{12} = \sum_{\alpha=1}^n C_{\alpha} e^{-12(n-\alpha)\theta} \quad (14)$$

$$S_{14} = \sum_{\alpha=1}^n C_{\alpha} \quad (15)$$

The entire system is then fully determined by values of  $C_{\alpha}$ ,  $S_{12}$  is a Fourier series which may be transformed into Chebyshev polynomials. the maximum value of  $S_{12}$  is equal to  $S_{14}$ ;  $S_{14}$  is independent of frequency if  $C_{\alpha}$  does not depend on frequency. This last property permits one to optimize the entire system by bringing only  $S_{12}$  into the form of Chebyshev polynomial. Expressions are obtained from (14) for various values of  $n$ , e.g. for  $n = 4$ :

$$S_{12} = (2C_1 \cos 3\theta + 2C_2 \cos \theta) e^{-13\theta}, \quad (C_1 = C_4; C_2 = C_3). \quad (19)$$

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Calculating the Chebyshev directional... S/108/62/017/001/005/007  
D271/D304

It is postulated that backward transfer coefficient determined by expressions as above must have Chebyshev frequency characteristics:

$$|S_{12}|_n = h T_{n-1} \left( \frac{\cos \theta}{p} \right), \quad (21)$$

where  $h$  and  $p$  are amplitude and scale coefficients,  $T_{n-1}(\Omega)$  - Chebyshev polynomial of first class and  $(n-1)$  order;  $h$  represents permitted value of  $S_{12}$  in the coupler pass-band. The obtainable value of  $p$  is

$$p = \frac{1}{\operatorname{ch} \left[ \frac{1}{n-1} \operatorname{ar ch} \sqrt{k} \right]}, \quad (24)$$

where  $k$  is the minimum prescribed directivity;  $k = |S_{14}|^2/h^2$ . When  $p$  is known, the required number of elements can be found from

$$n = \frac{\operatorname{ar ch} \sqrt{k}}{\operatorname{ar ch} \frac{1}{p}} + 1. \quad (25)$$

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Calculating the Chebyshev directional... S/108/62/017/001/005/007  
D271/D304

In design work it is not  $p$  which is of interest but the working range  $\Delta = 2 \frac{\lambda_2 - \lambda_1}{\lambda_2 + \lambda_1}$  and overlap coefficient  $\chi = \lambda_2/\lambda_1$ , which are obtained from  $p$ . In order to determine transfer coefficients of elements  $C_1, C_2$ , etc., Chebyshev polynomials are transformed into a form similar to that of the expression (19), e.g.

$$T_4\left(\frac{\cos \theta}{p}\right) = \frac{1}{p^4} \cos 4\theta + 4\left(\frac{1}{p^4} - \frac{1}{p^2}\right) \cos 2\theta + \left(\frac{3}{p^4} - \frac{4}{p^2} + 1\right). \quad (32)$$

By comparing expressions of the type (19) and (32) values of  $C_n/h$  are obtained as a function of  $p$ . These are tabulated (in dB) in design tables. Diameters of coupling holes are determined for the case of a coupler formed by two identical waveguides coupled by circular holes in the common short wall. For loose coupling, the expression relating transfer attenuation to dimensions of the hole is

$$L_{dB} = 20 \log \frac{1}{C_1} = 20 \log \frac{12 b}{\pi \Delta} \left(\frac{a}{d}\right)^3. \quad (34)$$

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Calculating the Chebyshev directional... S/108/62/017/001/005/007  
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A numerical example is given illustrating the application of the method. Design data are presented in 10 tables giving values for  $n = 2, 3, \dots, 11$  and  $p = 0.1, 0.2, \dots, 1.0$ . There are 6 figures, 10 tables and 10 references: 5 Soviet-bloc and 5 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: W.R. Hewlett, U.S.A. patent specification 2,871,452 of January 27, 1959; E. Hensperger, The microwave journal, issue 2, no. 8, 1959; B. Levy, Proc. I.E.E., part C, no. 337E, 1959; J. Reed and G.J. Wheeler, I.R.E. transactions on microwave theory and techniques. MTT-4, no. 4, 1956.

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi im. A.S. Popova (Scientific and Technical Society of Radio Engineering and Electrical Communications imeni A.S. Popov) [Abstractor's note: Name of association taken from first page of journal]

SUBMITTED: October 26, 1960

Card 7/8

AUTHOR: Zhavoronkova, Ye. S.

108-1-3/10

TITLE: The Influence of the Asymmetry of the Excitor Slit on the Accuracy of the Cutoff Attenuator of Capacitive Type  
(Vliyaniye asimmetrii vzbuzhdayushchey shcheli na tochnost' predel'nogo oslabitelya yemkostnogo tipa)

PERIODICAL: Radiotekhnika, 1958, Vol. 13, Nr 1, pp. 29-39 (USSR)

ABSTRACT: The influence on the accuracy of a model cutoff attenuator of capacitive type of only one of the possible causes for the change of the magnitude of the dying-out constant, that is to say by the formation of a connection between the exciting and the receiving element is investigated for several types of waves at the same time. This investigation was conducted because the opinion prevails at present (ref. 1) that supposedly a connection on one of the parasitic waves (in particular on the wave of the type  $H_{11}$ ) limits the possibility of using cutoff attenuators as standard apparatus. As cutoff attenuators are used within a wide range of frequency and therefore the frequency dependence of the error caused by the non-linearity of the attenuator is of

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The Influence of the Asymmetry of the Excitor Slit on the Accuracy of the Cutoff Attenuator of Capacitive Type

108-1-3/10

is of interest the author gives the computation of this error as well as the problem of the tolerances for the deviation of the excitor- and receiver slit from the symmetry when using the apparatus within the frequency range of from 10 to 3000 megacycles. The attenuator described in ref. 2 is investigated. An exact solution of the electrodynamic problem for the investigated attenuator type with asymmetric slits is very complicated. The author restricts himself to the computation of the amplitudes of the waves of the  $E_{01}$  - and  $H_{11}$ -type excited by the asymmetric slit. The effect of the receiving slit is investigated qualitatively. The attenuator error forming at the expense of the misalignment (perekos) (?) of the excito slit is calculated.- First the amplitudes of the wave types  $H_{11}$  and  $E_{01}$  excited by an inclinde ring-slit are determined. This is done according to the method of Ya. N. Fel'd (ref. 3) using the Lorentz condition as done by M. B. Zakson (ref. 4). Different from ref. 4 no magnetic currents are introduced but the author directly deals with the electric field in the slit. The idea

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The Influence of the Asymmetry of the Excitor Slit on the 108-1-3/10  
Accuracy of the Cutoff Attenuator of Capacitive Type

of this method is that the Lorentz-condition is applied to a volume which is limited by two sections left and right of the slit.- Then the formulae for the amplitudes of the wave types  $H_{11}$  and  $E_{01}$  are deduced. It is proved that the amplitude of the  $E_{01}$ -wave excited by the slit does not depend on the frequency, whereas that of the  $H_{11}$ -wave is proportional to the square of the frequency. In the next chapter the ratio between the amplitudes of the  $E_{01}$ - and  $H_{11}$ - waves is determined: Equation (28), The analysis of equation (28) shows that 1.- The said ratio of the amplitudes increases with the increase of the dying-out which is brought into the tract by the attenuator according to the law

$$\frac{(\nu - \mu)}{\epsilon} \frac{z}{a}$$

2. That the formula (28) investigated depends on the frequency.- It is shown that with frequencies of the order of some dozens of megacycles the system obtains an "electrostatic"

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The Influence of the Asymmetry of the Excitor Slit on the Accuracy of the Cutoff Attenuator of Capacitive Type 108-1-3/10

character (because of the minute values of the magnetic fields) and that the connection on the  $H_{11}$ -wave in the attenuator is negligibly small.

The influence of the asymmetry of the receiving slit on the attenuator characteristics is investigated and the errors of the attenuator are determined. It is shown that 1.- At from 20-80 megacycles the error of the investigated attenuator is negligibly small and that it need not be taken into account when using the apparatus as standard of the attenuation with an accuracy of up to 0,001 db with 100 db attenuation. 2. At from 200 to 3000 megacycles the error of the apparatus is also unimportant and need not be taken account with standard apparatus with an accuracy of up to 0,01 db with 100 db attenuation.

$E_{01}$  - denotes the fundamental wave  $H_{11}$  denotes the parasitary wave. There are 11 figures, and 5 references, 4 of which are Slavic.

SUBMITTED: February 1, 1957

AVAILABLE: Library of Congress

Card 4/4

1. Radio frequency attenuators-Stability 2. Mathematics-Theory

ZHAVORONKOVA, Ye.S.

Effect of the exciting-slot asymmetry on the precision of cutoff  
capacitance attenuators. Radiotekhnika 13 no.1:29-39 Ja '58.

(MIRA 11:2)

(Microwaves) (Wave guides)

LERMAN, M.D.; MANDEL', R.B.; ZHAVORONKOVA, Z.V.; PAN'ILOV, D.I.

Finishing furniture panels with polyester varnish in forms.  
Der. prom. 13 no.7:26-27 JI '64.

(MIRA 17:11)

cc

30

Formation of hydrogen sulfide and of sulfur dioxide in the vulcanization of rubber. S. G. Zhavarovsk. *J. Applied Chem.* (U. S. S. R.) 9, 1200-8 (1936); *Chimie & Industrie* 37, 742.—Both of these gases are formed during the hot vulcanization of rubber, the amts. depending on the proportion of S in the mix and the time of vulcanization. The gases liberated affect the rate of fixation of the S by the rubber. In vacuum, vulcanization does not take place so well as at atm. pressure because liberation of the gases displaces the equil. of the reaction in the direction of greater production of  $H_2S$  and of  $SO_2$  at the expense of the S required for vulcanization. A. Papineau-Couture

ASS-SLA METALLURGICAL LITERATURE CLASSIFICATION

150000 LITERATURE

150000 LITERATURE

<p>FORMATION OF HYDROGEN SULFIDE AND SULFUR DIOXIDE IN THE VULCANIZATION OF RUBBER. The mechanism of the vulcanization of rubber. S. G. Zhavoronok. <i>J. Applied Chem.</i> (U. S. S. R.) 9, 1290-8 (in French 1958) (1036). The expts. were carried out with crepe rubber and S, 4 parts by wt. of the latter per 100 parts by wt. of the former. The vulcanization was carried out at 143-145° and the gases obtained were analyzed in the usual manner (the app. is described and illustrated). The amts. of <math>H_2S</math> and <math>SO_2</math> formed depend upon the amt. of S introduced and the duration of the vulcanization process. The <math>H_2S</math> and <math>SO_2</math> sepg. affect the consts. of the combination of S with the rubber, which therefore are apt to deviate from the rules established by some investigators. Vulcanization of rubber carried out in vacuo is less satisfactory, because of elimination of gaseous reaction products and since in this case the reaction proceeds more vigorously toward the formation of <math>H_2S</math> and other S compds. In the detn. of the amt. of S in rubber samples of unknown origin by the generally accepted methods, the amt. of S consumed in the formation of gaseous S compds. should be considered.</p> <p style="text-align: right;">A. A. Boettinger</p>																									
<p>ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																									

**Formation of hydrogen sulfide and sulfur dioxide in the vulcanization of rubber. The mechanism of the vulcanization of rubber.** S. O. Zhaynovskiy, *J. Applied Chem. (U. S. S. R.)* 9, 1200-3 (in French 1936) (1936). The experiments were carried out with crepe rubber and S, 8 parts by wt. of the latter per 100 parts by wt. of the former. The vulcanization was carried out at 142-145° and the gases obtained were analyzed in the usual manner (the app. is described and illustrated). The amts. of H<sub>2</sub>S and SO<sub>2</sub> formed depend upon the amt. of S introduced and the duration of the vulcanization process. The H<sub>2</sub>S and SO<sub>2</sub>, accp. affect the course of the vulcanization of S with the rubber, which therefore are apt to deviate from the rules established by some investigators. Vulcanization of rubber carried out in vacuo is less satisfactory, because of elimination of gaseous reaction products and since in this case the reaction proceeds more vigorously toward the formation of H<sub>2</sub>S and other S compds. In the data, of the amt. of S in rubber samples of unknown origin by the generally accepted methods, the amt. of S consumed in the formation of gaseous S compds. should be considered.

A. A. Dnestrovskiy

A. A. Buchstingh

ASB 11A METALLURGICAL LITERATURE CLASSIFICATION

11 AND 120 DDD(1)										120 AND 120 DDD(1)									
PROCESSES AND PROPERTIES INDEX																			
<p>CA</p> <p>Properties of Soviet gutta-percha. H. G. Zhayronok, <i>Cauchouc and Rubber</i> (U. S. S. R.) 1918, No. 7, 33-6. The following are the properties of gutta-percha obtained from the marsh Beraklet: d. 0.970 (milled); ash 0.73-2.35%; insol. in <math>\text{CHCl}_3</math> 0.58-1%; water 1.5-5.8%; tar 3.4-9.3% (after 4 years of natural aging the proportion of tar increased to 65%); gutta 90.5% (25 hrs. of <math>\text{CHCl}_3</math> extra.); softening point 64-7°; swelling after 24 hrs. at 20° in 30% <math>\text{HCl}</math> 4%; in <math>\text{HNO}_3</math> 3.83%; in <math>\text{H}_2\text{SO}_4</math> 0.74%, in <math>\text{NaOH}</math> 1.58%; in acid. <math>\text{Ca}(\text{OH})_2</math> 0.60%. X-ray data are given.</p> <p>A. Pustoff</p>										<p>30</p>									
<p>ASB-56 METALLURGICAL LITERATURE CLASSIFICATION</p>																			
<p>10000 01</p>										<p>10000 01</p>									
<p>10000 01</p>										<p>10000 01</p>									



100 AND 1000 CODES

PROCESSING AND PROPERTIES INDEX

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cc

Aging and stabilization of Soviet gutta percha. N. G. Zhaykovskiy and P. G. Adamov. *Rubber Chemistry and Technology* (U.S.S.R.) 1938, No. 11, 18-20. The effects of accelerators, stabilizers, fillers and pigments as stabilizers against aging of raw and vulcanized gutta-percha (I) were studied. The mech. properties and acetone ext. were detd. before and after 3, 6 and 9 months' exposure indoors and outdoors. The following were found to be effective stabilizers for uncured I (2% by wt.): thiram disulfide, Neozene-D, alkyl-naphthylamine, pyrogallol, hydroquinone, Stabulite and (15% by wt.) C black, lampblack and Mo sulfide. For vulcanized I the following recipe was used: 100, S A, accelerator U S, ZnO 5, cured 90 min. at 140°. The following proved to be good stabilizers: hexamethylenetetramine, benzidine, Neozene-D, Rubrax and coal tar.

Bernard Killberg

ASO-SLA METALLURGICAL LITERATURE CLASSIFICATION

GROUPS

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

A.C.S.

Geology

Device for the rapid determination of the insoluble residue in a batch. A. O. ZAMONCHIK. *Sovetskaya Lab.* 9 [9] 1040-80 (1940); *Khim. Refrat. Zhur.* 4 [3] 88 (1941).—The apparatus consists of a cylindrical funnel provided with a stopcock, which fits into a filter pycnometer. The latter consists of a separatory funnel having a porous glass plate fused in the middle of it. The filter pycnometer is connected to a bell jar for filtration under suction. The weighed sample is placed in the funnel and dissolved in HCl. The water pump is started, and both stopcocks are open. The residue remains on the filter where it is washed with water. The stopcock of the pycnometer is closed, and the pycnometer is separated from the funnel and the bell, filled with water, and weighed. The amount of insoluble residue is calculated by the formula  $x = \frac{d}{d-1} (m_1 - m_2)$ , where  $d$  is the specific gravity of sand,  $m_1$  is the weight of the insoluble residue and water, and  $m_2$  is the weight of water filling the pycnometer (when there is no residue in it). M.II.

ZHAVORONOK, S. G., Doc Tech Sci -- (diss) "Research into the field of Besser vulcanization of rubbers." Leningrad, 1960. 34 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Leningrad Order of Labor Red Banner Technology Inst im Lensovet); 200 copies; price not given; list of author's work on pp 33-34 (20 entries); (KL, 24-60, 131)

ZHAVORONOK, S.G.

Vulcanization of rubbers with halogenated benzoquinone derivatives. Izv.vys.ucheb.zav.; khim.i khim.tekh 2 no.4: 626-635 '59. (MIRA 13:2)

1. Leningradskiy tekhnologicheskii institut in. Lenosoveta.  
Kafedra tekhnologii reziny.  
(Rubbers, Synthetic) (Vulcanization)  
(Benzoquinone)

5(1, 3)

SOV/153-2-4-30/32

AUTHOR:

Zhavoronok, S. G.

TITLE:

Vulcanization of Rubbers With Halogenated Derivatives of Benzoquinone

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1959, Vol 2, Nr 4, pp 626-635 (USSR)

ABSTRACT:

The effect on synthetic rubbers mentioned in the title has been little discussed in publications although it is not only of theoretical but also of practical interest. A survey of publications follows (Refs 1-16). The author investigated the vulcanizing effect of p-benzoquinone, monochloro- and monobromoquinone, dichloro- and dibromoquinone, tetrachloro- and tetrabromoquinone, monochloro-, trichloro-, and tetrachlorohydroquinone, mono-, di-, and tetrabromohydroquinone, as well as other benzoquinone derivatives. They were tested on sodium-divinyl rubber. Lead-, manganese-, and mercury dioxide, barium hydroxide and -dioxide, oxides of magnesium, iron, chromium, aluminum, etc were used as activators. Only part of the halogen derivatives combines with the rubber, the rest remains free and can be extracted by hot acetone or alcohol. The vulcanizates were investigated for their content

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## Vulcanization of Rubbers With Halogenated Derivatives of Benzoquinone

of free halogen compounds (Table 1). On account of the results, the author draws the following conclusions: 1) Synthetic rubbers can be vulcanized by some benzoquinone derivatives. The most effective derivatives are: tetrachloro- and tetrabromoquinone. The best activators are: lead- and manganese dioxide as well as mercuric oxide. The vulcanizing effect of benzoquinone-chloro-derivatives is directly related to the chlorine concentration in the benzene ring. The extended duration and higher temperature of vulcanization increases the quantity of the halogen derivatives bound by the rubber. 2) The vulcanizates produced from divinyl-styrene rubbers by using tetrachloroquinone have excellent physico-mechanical properties: specific tensile strength up to 180-230 kg/cm<sup>2</sup> and more, a relative tensility of 700-500% with a residual extension of 12-4%. 3) In vulcanization the accelerators, the activator, and the vulcanizer - sulfur - can be substituted by chloranyl in the sulfur recipe. Thus, the assortment, of the ingredients to be used, and the production of new rubber types can be extended. 4) The transformation of divinyl-styrene rubbers into tridimensional polymers takes place at about 260-280°. The content of tridimensional polymers decreases with higher temperatures since the thermal destruction

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Vulcanization of Rubbers With Halogenated Derivatives of Benzoquinone

exceeds construction. 5) Since tetrachloroquinone is an oxidizer, it is reduced to tetrachlorohydroquinone: H-atoms are separated from the  $\alpha$ -methylene groups of polymeric chain molecules. Free polymer radicals are formed which lead to the formation and development of spatial tridimensional structures (vulcanizates), or the radicals are recombined. There are 6 figures, 3 tables, and 21 references, 14 of which are Soviet.

ASSOCIATION: Leningradskiy tekhnologicheskii institut im. Lensovet;  
Kafedra tekhnologii reziny  
(Leningrad Technological Institute imeni Lensovet; Chair  
of Rubber Technology)

SUBMITTED: April 7, 1958

Card 3/3

ZHAVORONOK, S.G.

Vulcanization of rubber without the use of sulfur. Part 7:  
Vulcanization of bivinylstyrene and bivinyl nitrile rubbers  
by m-dinitrobenzene and 1,3,5-trinitrobenzene. Inv.vys.ucheb.  
zav.; khim. i khim.tekh. 1 no.5:120-125 '58.

(MIRA 12:2)

1. Leningradskiy tekhnologicheskii institut imeni Lensovetu,  
kafedra tekhnologii reziny.

(Rubber, Synthetic) (Vulcanization) (Benzene)



5(3)

AUTHOR:

Zhavoronok, S.G.

SOV/153--58-2-26/30

TITLE:

On the Problem of the Vulcanization of Rubbers Without Sulfur  
(K voprosu o vulkanizatsii kauchukov bez primeneniya sery)  
Communication VI. Vulcanization of Polybutadiene Rubber by Means  
of Polynitro Compounds of the Aromatic Series (Soobshcheniye VI.  
Vulkanizatsiya polibutadiyenykh kauchukov polinitrosoyedineniyami  
aromaticheskogo ryada)

PERIODICAL:

Izvestiya vysshikh uchebnykh zavodeny. Khimiya i khimicheskaya  
tekhnologiya, 1958, Nr 2, pp 160 - 169 (USSR)

ABSTRACT:

In the beginning the effect and the utilization of the polynitro  
compounds for vulcanization purposes are mentioned (Refs 1-14).  
Earlier it had been maintained that the changes taking place in  
rubber under the influence of the mentioned compounds are similar  
to those taking place in the processing of rubber with sulfuric  
acid or sulfo acids (cyclization). The consideration according to  
which a part of the polynitro compound may be reduced by a hydro-  
carbon (or possible admixtures) to a nitroso compound is of special  
interest. A part of the latter is then reduced to phenyl hydroxyl-  
amine. The latter enters reaction with the nitrobenzene derivatives  
and forms an azoxy compound (Ref 13). A nitroso compound may react

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On the Problem of the Vulcanization of Rubbers Without Sulfur. Communication VI. Vulcanization of Polybutadiene Rubber by Means of Polynitro Compounds of the Aromatic Series SOV/153-58-2-26/30

with the rubber hydrocarbons without further reduction. The second group of the polynitro compound reacts with the neighboring rubber chain and leads to the formation of vulcanizates under the formation of a cross connection. The problem of vulcanization of synthetic rubbers by the substances mentioned in the subtitle has hitherto hardly been investigated. For the investigation of the chemical nature of the mentioned process the author determined the quantity of nitrogen bound in the vulcanizate in dependence on the dosage of the polynitro compound, the duration and the temperature of vulcanization. Moreover, the activator was selected and its influence on the rate of vulcanization, the properties of the vulcanizates, and the kinetics of the binding of nitrogen by the rubber was determined. The influence of the vulcanization conditions on the transformation of rubber into 3-dimensional polymers and on the properties of the vulcanizates was examined. The following was observed: 1) Polybutadiene rubber passes into the vulcanized state under the influence of m-dinitrobenzene or 1,3,5-trinitrobenzene in the presence of barium hydroxide. Without activator this process is obstructed by the mentioned nitrobenzene

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On the Problem of the Vulcanization of Rubbers Without Sulfur. Communication VI. Vulcanization of Polybutadiene Rubber by Means of Polynitro Compounds of the Aromatic Series

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derivatives. Temperature increase or a longer duration of polymerization increase the amount of the nitrogen bound by the rubber. 2) The effect of barium hydroxide or of a similar activator causes the formation of metallic derivatives of the corresponding polynitro compound, which then decompose under the formation of free radicals. These free radicals form active centers and introduce the vulcanization process. This leads to the formation and the development of complicated reticular structures (vulcanizates). The presence of metallic derivatives is characterized by a glaring red color of the rubber mixtures and their vulcanizates. The rate of the vulcanization process depends on what metallic derivatives of the polynitro compound are formed: vulcanization is most efficient in the presence of monometallic derivatives. Di and trimetallic derivatives obstruct the process, or it even does not take place at all. There are 2 figures, 3 tables, and 28 references, 11 of which are Soviet.

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On the Problem of the Vulcanization of Rubbers Without Sulfur. Communication VI. Vulcanization of Polybutadiene Rubber by Means of Polynitro Compounds of the Aromatic Series SOV/153-58-2-26/30

ASSOCIATION: Leningradskiy tekhnologicheskii institut im. Lensovet  
(Leningrad Technological Institute imeni Lensovet)  
Kafedra tekhnologii reziny (Chair for Rubber Technology)

SUBMITTED: September 20, 1957

Card 4/4

DAROVSKIKH, G.T.; ANDREYEVSKIY, D.N.; ZHAVORONOK, S.G.

Ethers of dimethylphenyl-p-cresol and their utilization.  
Khim. prom. no.4:261-263 Ap '63. (MIRA 16:8)

TITOVA, E.V.; ZHAVORONKOVA, T.N.

Effect of virgin steppe plowing on species and the abundance of  
ground beetle populations (Carabidae). Trudy Vses. ent. ob-va 50:  
103-120 '65. (MIRA 18:5)

5(1, 3)

AUTHOR: Zhavoronok, S. G.

SOV/153-58-5-20/28

TITLE:

On the Problem of the Vulcanization of Rubbers Without Sulfur  
(K voprosu o vulkanizatsii kauchukov bez primeneniya sery)  
VII. Vulcanization of Divinyl Styrene and Divinyl Nitrile  
Rubbers With m-Dinitro Benzene and 1,3,5-Trinitro Benzene  
(VII. Vulkanizatsiya divinilstirol'nykh i divinilnitril'nykh  
kauchukov m-dinitrobenzolom i 1,3,5-trinitrobenzolom)

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya  
tekhnologiya, 1958, Nr 5, pp 120-125 (USSR)

ABSTRACT:

As the rubbers mentioned in the subtitle are investigated only  
to a low degree with respect to their vulcanization with the  
two substances mentioned the author carried out the present in-  
vestigation. The changes in rubbers occurring under the action  
of these compounds concerned the content of 3-dimensional  
polymers (insoluble part), swelling, hardness etc. Chloroform,  
benzene, dichloro ethane and others were used as solvents.  
Divinyl styrene rubber SKS-30 and SKS-10. The author proved by  
the extraction with chloroform that the content of linear poly-  
mers in vulcanized mixtures of the rubbers mentioned with 1,3,5-

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On the Problem of the Vulcanization of Rubbers Without Sulfur. VII. Vulcanization of Divinyl Styrene and Divinyl Nitrile Rubbers With m-Dinitro Benzene and 1,3,5-Trinitro Benzene

trinitro benzene (TNB) and m-dinitro benzene (m-DNB) was higher than in the initial rubbers without TNB and DNB. This is explained by a partial plasticizing of the rubbers on the rolls during the production of the mixtures. The dependence of the content of 3-dimensional polymers, of the swelling and the hardness upon the temperature of vulcanization and upon the TNB and m-DNB additions in the vulcanization is shown in figure 1 (SKS-10) and figure 2 (SKS-30). Divinyl Nitrile Rubbers. From figure 4 it may be seen that TNB, in the presence of barium hydroxide as activator, exerts an effect upon the transformation of the said rubbers into 3-dimensional polymers. This is probably a similar effective mechanism as is known of the polybutadiene, divinyl styrene and other rubbers. Based on the results obtained the author arrives at the following conclusions:

- 1) In the first stages of heating, to about 120° TNB hampers the transformation of the divinyl styrene rubbers into 3-dimensional polymers. A heating above 120° leads to a noticeable structurization. This again causes the content of the share insoluble in chloroform and other solvents to increase abruptly.

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On the Problem of the Vulcanization of Rubbers Without Sulfur. VII. Vulcanization of Divinyl Styrene and Divinyl Nitrile Rubbers With m-Dinitro Benzene and 1,3,5-Trinitro Benzene

m-DNB hampers the said transformation process of the rubbers mentioned up to about 180°. In the initial stages a sort of induction period is observed. There, too, heating above 180° abruptly accelerates the transformation. 2) The rubbers SKS-10 due to their higher reactivity have a greater tendency to structurization under the action of TNB than the SKS-30 rubbers. 3) Both rubbers mentioned in the subtitle are capable of structurization also without vulcanizing additions, that process, however, takes place less intensely. At higher temperatures the vulcanizing substance has no influence upon the structurization of the rubber. This process is mainly caused by the heat effect. 4) The vulcanization process of the two rubbers mentioned in the subtitle by TNB and m-DNB takes place much more intensely in the presence of the activator barium hydroxide. There are 4 figures and 4 Soviet references.

ASSOCIATION: Leningradskiy tekhnologicheskij institut imeni Lensovetu,  
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SOV/153-58-5-20/28

On the Problem of the Vulcanization of Rubbers Without Sulfur. VII. Vulcanization of Divinyl Styrene and Divinyl Nitrile Rubbers With m-Dinitro Benzene and 1,3,5-Trinitro Benzene

Kafedra tekhnologii reziny (Leningrad Technological Institute imeni Lensovet, Chair of Rubber Technology)

SUBMITTED: September 20, 1957

Card 4/4

SHPII'BERG, B.A.; SHELESTOV, M.S.; GRUZDEV, A.K.; PRAVEDNYKH, Ye.Z.  
FILICHKIN, I.Ye.; ZHAVORONOK, V.I.

Zyryanovsk deposit sulfide complex ore dressing in heavy suspensions.  
Bul. TSIIN tsvet. met. no.19/20:34-39 '57. (MIRA 11:5)  
(Zyryanovsk--Sulfides)  
(Ore dressing)

SOV/137-58-7-14023

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p5 (USSR)

AUTHORS: Shpil'berg, B. A., Shelestov, M. S., Gruzdeva, A. K., Pravednykh, Ye. Z., Filichkin, I. Ye., Zhavoronok, V. I.

TITLE: Experiences in the Concentration of the Polymetallic Sulfide Ores of the Zyryanovskoye Deposit in Heavy Suspensions (Opyt obogashcheniya v tyazhelykh suspenziyakh sul'fidnoy polimetallicheskoj rudy Zyryanovskogo mestorozhdeniya)

PERIODICAL: Byul. tsvetn. metallurgii, 1957, Nr 19-20, pp 34-39

ABSTRACT: Laboratory investigations have proved the possibility of concentrating the -30+4 mm class in suspensions, in which the tailings take 43.5% of the ore, with 0.04% Cu, 0.13% Pb, and 0.14% Zn. Losses in the tailings are: 4.9% Cu, 3.2% Pb, and 2% Zn. The concentration in the concentrate consisted of 0.57% Cu, 3.11% Pb, and 4.98% Zn. The Zyryanovsk Kombinat has built an experimental plant to handle 80-100 t/day. A description is offered of the I. L. Denisov mushroom valve for automatic maintenance of the level in the suspension feeder. The work of the plant has demonstrated the possibility of removing 45% of the ore in the tailings (of the original, or 61% of the

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